CLAIMS

What is claimed is:

1. An image reading apparatus which reads a document surface placed face-up on a document table, and controls an image density based on document ground brightness data obtained by reading the document, and said image reading apparatus, comprising:

an image pickup device for picking up the document;

a main-scanning means for reading out the document by scanning of the image pickup device, and outputting the image data;

a pre-scanning means for reading out the document by scanning of the image pickup device before the main-scanning operation, and obtaining a data of document ground brightness;

a memory means for memorizing the ground brightness data obtained by the pre-scanning means;

a document change detection means for detecting whether a document is changed or not;

a density control means for controlling a density of the image obtained by the main-scanning means based on the ground brightness data memorized in the memory means; and,

a control means for controlling the pre-scanning means and a memory means so that a pre-scanning is not executed and the data memorized in the memory means is not renewed when a document

change is not detected by the document change detection means, and so that a pre-scanning is executed and the data memorized in the memory means is renewed when a document change is detected by the document change detection means.

2. An image reading apparatus which reads a document surface placed face-up on a document table, and controls an image density based on document ground brightness data obtained by reading the document, and said image reading apparatus, comprising:

an image pickup device;

an image reading means for reading out a document image by the image pickup device;

a ground brightness detection means for detecting a document ground brightness;

a memory means for memorizing the ground brightness data obtained by the ground brightness detection means;

a document change detection means for detecting whether a document is changed or not;

a density control means for controlling a density of the image read out by the image reading means based on the ground brightness data memorized in the memory means; and,

a control means for controlling the memory means so that the data memorized in the memory means is renewed when a document change is detected by the document change detection means.

3. An image reading apparatus which reads a document surface placed face-up on a document table, and controls an image density based on document ground brightness data obtained by reading the document, and said image reading apparatus, comprising:

an image pickup device;

a main-scanning means for reading out the document by scanning of the image pickup device, and outputting the image data;

a pre-scanning means for reading out the document by scanning of the image pickup device before the main-scanning operation, and obtaining a data of document ground brightness;

a memory means for memorizing the ground brightness data obtained by the pre-scanning operation;

a page turned detection means for detecting a predetermined amount of page is turned over;

a density control means for controlling a density of the image obtained by the main-scanning operation based on the ground brightness data memorized in the memory means; and,

a control means for controlling the pre-scanning means and the memory means so that the pre-scanning is not executed and the data memorized in the memory means is not renewed when it is detected that a predetermined amount of page is not turned over by the page turned detection means, and so that a pre-scanning is executed and the data memorized in the memory means is renewed

when it is detected that a predetermined amount of page is turned over.

4. An image reading apparatus which reads a document surface placed face-up on a document table, and controls an image density based on document ground brightness data obtained by reading the document, and said image reading apparatus, comprising:

an image pickup device;

an image reading means for reading out the document image by the image pickup device;

a ground brightness detection means for detecting a ground brightness of a document;

a memory means for memorizing the ground brightness data obtained by the ground brightness detection operation;

a page turned detection means for detecting a predetermined amount of page is turned over;

a density control means for controlling a density of the image read out by the image reading operation based on the ground brightness data memorized in the memory means; and,

a control means for controlling the memory means so that the data memorized in the memory means is renewed when it is detected that a predetermined amount of page is turned over by the page turned detection means.

5. An image reading apparatus which reads a document surface to output an image data therefrom, and rectifies the

image data based on a correction data obtained by reading the document, and said image reading apparatus comprising:

an image pickup device;

a main-scanning means for reading out the document by scanning of the image pickup device, and outputting the image data;

a pre-scanning means for reading out the document by scanning of the image pickup device before the main-scanning operation, and obtaining a correction data of the document;

a memory means for memorizing the correction data obtained by the pre-scanning operation;

an abnormality detection means for detecting if an abnormality occurs concerning the correction data;

an image rectification means for rectifying the image obtained by the main-scanning operation based on the correction data memorized in the memory means; and,

a control means for controlling the pre-scanning means and a memory means so that the pre-scanning is not executed and the data memorized in the memory means is renewed when an abnormality is not detected by the abnormality detection means, and so that a pre-scanning is executed and the data memorized in the memory means is renewed when an abnormality is detected.

6. An image reading apparatus which reads a document surface to output an image data therefrom, and rectifies the image data based on a correction data obtained by reading the

document, and said image reading apparatus, comprising:

an image pickup device;

an image reading means for reading out the document image by the image pickup device;

a memory means for memorizing a correction data for rectifying an image data obtained by the image reading operation;

an abnormality detection means for detecting of an abnormality occurs concerning the correction data;

an image rectification means for rectifying the image obtained by the image reading operation based on the correction data; and,

a control means for controlling the memory means so that the data memorized in the memory means is renewed when an abnormality is detected by the abnormality detection means.

7. An image reading apparatus which reads a document surface to output an image data therefrom, and rectifies the image data based on a correction data obtained by reading the document, and said image reading apparatus, comprising:

an image pickup device;

a main-scanning means for reading out the document by scanning of the image pickup device, and outputting the image data;

a pre-scanning means for reading out the document by scanning of the image pickup device before the main-scanning operation, and obtaining a correction data of the document;

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a memory means for memorizing the correction data;

an image rectification means for rectifying the image obtained by the main-scanning operation based on the correction data memorized in the memory means;

a data set up means for setting up a correction data that is to be memorized in the memory means by a manual operation; and,

a control means for controlling the pre-scanning means and the main-scanning means so that a pre-scanning is not executed and a main-scanning is executed when a correction data is set up in the data set up means.

8. An image reading apparatus as defined in claim 7, wherein the image pickup device is arranged above a document table and picks up a document which is placed face-up on the document table.

9. An image reading apparatus which reads out a bookform document and a sheetform document, and outputs the image data of the same, and said image reading apparatus comprising:

an image pickup device for picking up the document image;

an auto document feeder for feeding a sheetform document to a document reading position;

a main-scanning means for reading out the document by scanning of the image pickup device, and outputting the image data;

a pre-scanning means for reading out the document by scanning of the image pickup device before the main-scanning operation, and obtaining a correction data;

a memory means for memorizing the correction data obtained by the pre-scanning operation;

an image rectification means for rectifying the image data obtained by the main-scanning operation based on the correction data; and,

a control means for controlling the pre-scanning means and the main-scanning means so that a main-scanning is only executed without executing a pre-scanning when the second paper of the sheetform document is read out.

10. An image reading apparatus as defined in claim 9, wherein the control means controls a pre-scanning means so that a pre-scanning is not executed for papers after the second paper of a sheet document.

11. An image reading apparatus as defined in claim 9, further comprising, a document judgment means for judging whether a document is sheetform or bookform; and,

said control means controls the pre-scanning means so that a pre-scanning is executed at every time before a main-scanning operation when a document is judged as bookform by the document judgment means.

12. An image reading apparatus as defined in claims 9, 10, or 11, wherein the image pickup device is arranged above a

document table, and picks up a document which is placed face-up on the document table.

13. An image reading apparatus which reads out a bookform document and a sheetform document, and outputs the image data of the same, and said image reading apparatus:

an image pickup device for picking up the document;

an auto-document feeder for feeding a sheetform document to a document reading position;

a main-scanning means for reading out the document by scanning of the image pickup device, and outputting the image data;

a pre-scanning means for reading out the document by scanning of the image pickup device before the main-scanning operation, and obtaining a correction data;

a memory means for memorizing the correction data obtained by the pre-scanning operation;

an image rectification means for rectifying the image data obtained by the main-scanning operation based on the correction data;

a document judgment means for judging whether a document is sheetform or bookform; and,

a control means for controlling the pre-scanning means whether a pre-scanning is to be executed or not in accordance with a kind of a document that is judged by the document judgment means.

14. An image reading apparatus as defined in claim 13, wherein the document judgment means is for judging whether a document is sheetform or bookform, and it is judged as a sheetform document when a document is placed on the auto-document feeder.

15. An image reading apparatus as defined in claim 13, wherein the control means controls a pre-scanning means so that a pre-scanning is executed when a document is bookform, and a pre-scanning is executed when it is sheetform.

16. An image reading apparatus as defined in claim 13, wherein the control means controls a pre-scanning means so that a pre-scanning is executed even thought a document is sheetform or bookform.

17. An image reading apparatus as defined in claim 13 further comprising, a distance measuring means for detecting a distance between the document surface and the image pickup device, a lens for focusing a document image on the image pickup device, and a focus condition adjusting means for driving the lens in accordance with a result of a distance detected by the distance measuring detection means; and,

said control means controls the focus condition control means so that the lens is driven to a fixed focal position adopted, not based on the result of a distance detected when a document is sheetform.

18. An image reading apparatus as defined in claim 17,

wherein the fixed focal position includes a plural position, and either one's position to be adopted is selected in accordance with a time when a bookform document is placed on the auto document feeder and when a sheetform document is placed on the document table where a bookform document is to be placed.

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